

## REMARKS

Claims 1 – 22, 24 and 25 remain in the application. Claims 1-22 were allowed in the Office Action and remain unchanged. Claims 24 and 25 remain in the application unchanged. Claim 23 has been amended to recite “medical devices” rather than “catheter probe.” New claims 26 and 27 have been added. Applicant respectfully traverses the rejections of claims 23-25 and requests reconsideration in light of the following remarks.

In the Action, claims 23 and 24 were rejected under 35 U.S.C. 102(e), as being anticipated by U.S. Patent No. 5,425,367 by Shapiro et al. (hereinafter referred to as ‘Shapiro’). This rejection is respectfully traversed. Claim 23 recites, among other things:

inducing within said at least one sensing coil a set of orientation signal values each representative of an orientation of said at least one sensing coil and independent of a position of said at least one sensing coil . . . .

(Emphasis added.) Thus, the induced signal values recited above in claim 23 are independent of the position of the sensing coil. No such teaching or suggestion is found in Shapiro. Rather, in Shapiro, “the signal induced in sensor coil 30 . . . will have a strength dependent only on the distance from the coils set 12 . . .” (emphasis added). See col. 4, lines 15-20. In order for a rejection under 35 U.S.C. § 102(e) to be proper, each and every element must be found in a single reference. Because such is not the case, the rejection of claim 23 under 35 U.S.C. § 102(e) in view of Shapiro should be withdrawn. Further, since claim 24 depends from claim 23, there is now no proper basis for that rejection.

Claim 25 is rejected under 35 U.S.C. § 103(a) as unpatentable over Shapiro in view of Ben-Haim. Applicant respectfully traverses this rejection. Claim 25 recites, among other things:

inducing within each of said plurality of sensing coils a set of orientation signal values each representative of an orientation of said sensing coil and independent of a position of said sensing coil . . . .

(Emphasis added.) As described above, Shapiro does not disclose or suggest inducing signal values independent of the position of the sensing coil. Ben-Haim fails to cure the deficiencies of Shapiro. Ben-Haim does not teach or suggest inducing signal values in the sensing coil that are independent of a position of the sensing coil. Because neither reference teaches or suggests this recitation, a combination of these two references cannot, as a matter of law, render obvious the claimed invention. Thus, neither Shapiro nor Ben-Haim disclose or suggest, alone or in reasonable combination, all the elements of claim 25. Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claim 25 under § 103(a).

New claim 26 has been added to further define "location" as position in three-dimensional space (e.g., x, y and z coordinates), and to further define "orientation" as orientation in three dimensional space (e.g.,  $\phi$  and  $\theta$ ). These amendments are supported by the specification (see column 6, lines 57-64, column 7, lines 21-31 and 45-51, column 9, lines 19-22, et al.)

Shapiro teaches a catheter location system that generates a horizontally-oriented, rotating field via a pair of perpendicular, coplanar, horizontal coils driven in quadrature (column 2, lines 41-53). Shapiro also teaches an embodiment of the system that includes vertically-oriented field generating coil in conjunction with the horizontal coil pair "... for additionally providing the relative orientation between the external probe and the catheter sensor coil; that is whether the field-generating coil is in front of, behind, or directly over the sensor coil." (see column 6, lines 44-51). In both embodiments described in Shapiro, the system can determine the relative horizontal angle between the probe and the sensor coil (column 9, lines 32-36). In other words, the system described in Shapiro can determine the angle of the sensor coil within a two-dimensional plane, relative to the probe. The system of Shapiro can not determine angles of the sensor coil that place the sensor coil in a plane other than the horizontal plane. In the embodiment of Shapiro with the vertically-oriented coil, the system can determine the relative horizontal angle between the probe and the sensor coil, along with sensor depth and the relative position of the vertically-oriented coil with respect to the sensor coil (column 9, lines 57-62). Further, the depth of the sensor may be determined by the strength of the signal induced in the sensor only when the probe is directly over the sensor (col 2, lines 53-56). In other words,

Shapiro can determine the position of the sensor relative to the probe in one dimension only; along a vertical axis extending from the probe to the sensor directly beneath the probe.

Shapiro neither teaches nor suggests a system for determining the position coordinates in three-dimensional space (e.g., x, y and z), and the angular orientation parameters (e.g.,  $\phi$  and  $\theta$ ), of a sensing coil. Claim 26 is thus patentably distinguishable over the art cited by the Examiner, and should be allowed.

Claim 27 has been added to further define "location" as position in three-dimensional space (e.g., x, y and z), and to further define "orientation" as orientation in three dimensional space (e.g.,  $\phi$  and  $\theta$ ). These amendments are supported by the specification (see column 6, lines 57-64, column 7, lines 21-31 and 45-51, column 9, lines 19-22, et al.). As asserted herein for claim 26, Shapiro neither teaches nor suggests a system for determining the position in three-dimensional space, and the orientation in three dimensional space, of a sensing coil. Claim 27 is thus patentably distinguishable over the art cited by the Examiner, and should be allowed.

All claims 1-27 are believed to be in condition for allowance. Passage to issue is requested.

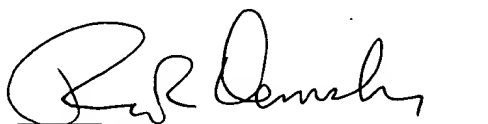
An extension fee of \$110.00 pursuant to 37 CFR §1.136(a) for a reply within the first month is also enclosed. No additional costs are believed to be due in connection with the filing of this Amendment. However, should any fees be due, please charge our Deposit Account No. 50-1133. A copy of this page is enclosed for this purpose.

If the Examiner believes there are any outstanding issues to be resolved with respect to the above-identified application, he is invited to telephone the undersigned at his earliest convenience so that such issues may be resolved telephonically.

Respectfully submitted,

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